

**IN THE CLAIMS:**

**Amendments to the Claims**

Please cancel claims 62-69 without prejudice or disclaimer of the subject matter thereof, and add the new claims as show below.

**Listing of Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-69 (canceled)

70. (new) A plasma etching apparatus for processing a sample disposed inside a vacuum vessel by an etching process, comprising:

a chamber located inside said vacuum vessel, an interior of the chamber being in a vacuum state and the sample being disposed in the chamber, electromagnetic waves being supplied from an upper side of the chamber and processing gas being introduced into the chamber so as to generate a plasma in the chamber;

an electrode disposed at a lower part of the chamber and having the sample loaded therein so as to be processed by the plasma generated inside of the chamber;

a member which is detachably held on an inner surface of a side wall of the vacuum vessel and forming an inner surface of the chamber which is in contact with the plasma, the member being removable from the side wall to outside of the chamber; and

a thermally conductive medium which is circulated inside of the member so as to control a temperature of a surface of the member to cool the surface of the member during etching processing of the sample so that products generated in the chamber during the etching processing of the sample are deposited on the member.

71. (new) A plasma etching apparatus according to claim 70, wherein a temperature of the surface of the member is controlled within a range of 20°C to 100°C during the etching processing of the sample.

72. (new) A plasma etching apparatus according to claim 70, wherein a temperature of the surface of the member is controlled to be lower than a temperature of the sample during the etching processing of the sample.

73. (new) A plasma etching apparatus according to claim 70, wherein a thermally conductive material comprises the side wall of the vacuum vessel and the member.

74. (new) A plasma etching apparatus for processing a sample disposed inside a cylindrically shaped chamber having an interior thereof in a vacuum state, wherein electro-magnetic waves and processing gas are supplied to the chamber so that a plasma is generated inside the chamber to etch the sample, comprising:

an antenna disposed at an upper part of the chamber which supplies the electro-magnetic waves to generate the plasma inside of the chamber;

an electrode disposed at a lower part of the chamber at a position below a space of the chamber where the plasma is generated, the sample being loaded on the electrode; and

a jacket which is detachably held on a surface of a side wall of a vacuum vessel which forms at least a portion of the chamber, the jacket forming at least a part of an inner surface of a side wall of the chamber and being in contact with the plasma in the chamber during etching processing of the sample;

wherein the jacket is supplied with a thermally conductive medium which is circulated inside of the jacket so as to control a temperature of a surface of the jacket which contacts the plasma in the chamber to cool the surface of the jacket during the

etching processing of the sample so that products generated in the chamber during the etching processing of the sample are deposited on the jacket.

75. (new) A plasma etching apparatus according to claim 74, wherein a temperature of the surface of the jacket is controlled within a range of 20°C to 100°C during the etching processing of the sample.

76. (new) A plasma etching apparatus according to claim 74, wherein a temperature of the surface of the jacket is controlled so as to be lower than a temperature of the sample during the etching processing of the sample.

77. (new) A plasma etching apparatus according to claim 74, wherein a thermally conductive material comprises the side wall of the vacuum vessel and the jacket.